

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2004/018540

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J23/89 B01J23/656 B01J23/60 B01D53/94

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 245 307 B1 (INUI SATOSHI ET AL) 12 June 2001 (2001-06-12) examples 1-36	1-8
X	EP 0 304 095 A (ENGELHARD CORPORATION) 22 February 1989 (1989-02-22) examples I-III	1-6,8
X	US 4 504 598 A (ONO ET AL) 12 March 1985 (1985-03-12) examples 1-17	1,2,5-8
X	US 3 867 309 A (OLECK ET AL) 18 February 1975 (1975-02-18) claims 1-14 examples 10-12 table VI	1-4,6,8
	----- -/-	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

2 February 2005

Date of mailing of the international search report

11/02/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Zuurdeeg, B

INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2004/018540

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 306 945 A (PHILLIPS PETROLEUM COMPANY) 15 March 1989 (1989-03-15) examples III, IV, V, VI, IX, X -----	1, 2, 6, 8
X	US 5 756 057 A (TSUCHITANI ET AL) 26 May 1998 (1998-05-26) examples 14-16, 34-38 table 1 -----	1, 2, 5-8
X	EP 0 449 423 A (NIPPON SHOKUBAI KAGAKU KOGYO CO. LTD; NIPPON SHOKUBAI CO., LTD) 2 October 1991 (1991-10-02) examples 4, 6, 7 tables 1, 2 -----	1, 2, 5-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/018540

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6245307	B1	12-06-2001	CA 2151859 A1	18-12-1995
			DE 69525791 D1	18-04-2002
			DE 69525791 T2	26-09-2002
			EP 0687495 A2	20-12-1995
			JP 8057318 A	05-03-1996
EP 0304095	A	22-02-1989	AT 44887 T	15-08-1989
			AU 618391 B2	19-12-1991
			AU 3950389 A	07-12-1989
			AU 589564 B2	19-10-1989
			AU 4364285 A	19-12-1985
			BR 8502767 A	18-02-1986
			CA 1242687 A1	04-10-1988
			DE 3571766 D1	31-08-1989
			DE 1711151 T1	27-11-1986
			EP 0171151 A1	12-02-1986
			EP 0304095 A2	22-02-1989
			ES 8700960 A1	16-02-1987
			ES 8707126 A1	01-10-1987
			ES 8702172 A1	16-03-1987
			JP 1883659 C	10-11-1994
			JP 6007923 B	02-02-1994
			JP 61011147 A	18-01-1986
			KR 9209112 B1	13-10-1992
			KR 9209113 B1	13-10-1992
			MX 173884 B	07-04-1994
			US 4675308 A	23-06-1987
			CA 1247074 A1	20-12-1988
			US 4738947 A	19-04-1988
			CA 1242686 A1	04-10-1988
			US 4678770 A	07-07-1987
US 4504598	A	12-03-1985	JP 1406311 C	27-10-1987
			JP 59209646 A	28-11-1984
			JP 62014337 B	01-04-1987
			JP 1406313 C	27-10-1987
			JP 59230639 A	25-12-1984
			JP 62014338 B	01-04-1987
			CA 1213874 A1	11-11-1986
			DE 3484324 D1	02-05-1991
			EP 0125565 A2	21-11-1984
US 3867309	A	18-02-1975	NONE	
EP 0306945	A	15-03-1989	US 4920088 A	24-04-1990
			CA 1319360 C	22-06-1993
			DE 3880241 D1	19-05-1993
			DE 3880241 T2	29-07-1993
			EP 0306945 A1	15-03-1989
			JP 1148334 A	09-06-1989
			JP 1905479 C	08-02-1995
			JP 6034921 B	11-05-1994
US 5756057	A	26-05-1998	CA 2138133 A1	10-11-1994
			CA 2363487 A1	10-11-1994
			DE 69427744 D1	23-08-2001
			DE 69427744 T2	23-05-2002
			EP 0666099 A1	09-08-1995

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/018540

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5756057	A	WO 9425143 A1	10-11-1994
EP 0449423	A	02-10-1991	JP 3113662 B2 04-12-2000
			JP 3249948 A 07-11-1991
			AT 104174 T 15-04-1994
			CA 2036888 A1 27-08-1991
			DE 69101661 D1 19-05-1994
			DE 69101661 T2 28-07-1994
			EP 0449423 A1 02-10-1991
			KR 9502223 B1 15-03-1995
			US 5106802 A 21-04-1992